WHAT IS CLAIMED IS:

1. An optical power control apparatus comprising:

a multiplexer for multiplexing two or more optical signals having different wavelengths;

an optical signal transmitting section including a plurality of channels for transmitting optical signals each having a different wavelength, respectively, to the multiplexer, which allows at least part of each optical signal to leak into a channel for an optical signal having another wavelength in at least part of the channels;

an optical signal transmission detector for detecting the presence or absence of optical signals transmitted through their respective proper channels included in the optical signal transmitting section; and

switches set in the channels of the optical signal transmitting section, respectively, for shutting down the channel where no optical signal transmission has been detected by the optical signal transmission detector.

2. An optical power control apparatus comprising:

a multiplexer for multiplexing two or more optical signals having different wavelengths;

an optical signal transmitting section including a plurality of channels for transmitting optical signals each having a different wavelength, respectively, to the multiplexer, which allows at least part of each optical signal to leak into a channel for an optical signal having another wavelength in at least part of the channels;

an optical signal transmission detector for detecting the presence or absence of optical signals transmitted through their respective proper channels in the optical signal transmitting section; and

attenuators set in the channels of the optical signal

transmitting section, respectively, for increasing the insertion loss in the channel where no optical signal transmission has been detected by the optical signal transmission detector so that the insertion loss in the channel becomes greater than the insertion loss that occurs when transmitting a proper optical signal.

3. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

demultiplexed signal level detectors set in the channels, respectively, for detecting the power levels of the optical signals;

an optical signal detector for deciding whether or not the power level of each optical signal detected by the demultiplexed signal level detector set in each channel is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel;

switches set in the channels, respectively, for passing or stopping the input optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the switches; and

a switch controller which controls the respective switches so as to shut down the channel where no optical signal input has been detected by the optical signal detector.

4. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths,

one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

demultiplexed signal level detectors set in the channels, respectively, for detecting the power levels of the optical signals;

an optical signal detector for deciding whether or not the power level of each optical signal detected by the demultiplexed signal level detector set in each channel is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel;

signal level adjusting sections set in the channels, respectively, for adjusting the levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the signal level adjusting sections; and

a signal level adjusting section controller which controls the respective signal level adjusting sections so as to attenuate the level of the optical signal of the channel where no optical signal input has been detected by the optical signal detector to the greatest extent possible.

5. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a spectrum analyzer for analyzing the spectrum of the multiplexed optical signal before being demultiplexed by the demultiplexer;

a wavelength-specific signal level detector for detecting the

power levels of the optical signals of the respective channels based on the analysis result obtained by the spectrum analyzer;

an optical signal detector for deciding whether or not the power level of the optical signal detected by the wavelength-specific signal level detector with respect to each wavelength is lower than the lowest level of an received optical signal to detect optical signal input in each channel;

switches set in the channels, respectively, for passing or stopping the input optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the switches; and

a switch controller which controls the respective switches so as to shut down the channel where no optical signal input has been detected by the optical signal detector.

6. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a spectrum analyzer for analyzing the spectrum of the multiplexed optical signal before being demultiplexed by the demultiplexer;

a wavelength-specific signal level detector for detecting the power levels of the optical signals of the respective channels based on the analysis result obtained by the spectrum analyzer;

an optical signal detector for deciding whether or not the power level of the optical signal detected by the wavelength-specific signal level detector with respect to each wavelength is lower than the lowest level of

an received optical signal to detect optical signal input in each channel;

signal level adjusting sections set in the channels, respectively, for adjusting the levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the signal level adjusting sections; and

a signal level adjusting section controller which controls the respective signal level adjusting sections so as to attenuate the level of the optical signal of the channel where no optical signal input has been detected by the optical signal detector to the greatest extent possible.

7. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a supervisory signal receiver for receiving a supervisory signal indicating whether there is transmission of at least part of the optical signals of the respective channels which form the multiplexed optical signal input to the demultiplexer;

switches set in the channels, respectively, for passing or stopping the input optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the switches; and

a switch controller which controls the respective switches so as to shut down each channel when the supervisory signal receiver has determined that no optical signal was transmitted to the channel.

8. An optical power control apparatus comprising:

a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexes the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a supervisory signal receiver for receiving a supervisory signal indicating whether there is transmission of at least part of the optical signals of the respective channels which form the multiplexed optical signal input to the demultiplexer;

signal level adjusting sections set in the channels, respectively, for adjusting the levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

a multiplexer for multiplexing the optical signals of the respective channels, which have passed through the signal level adjusting sections; and

a signal level adjusting section controller which controls the respective signal level adjusting sections so as to attenuate the level of the optical signal of each channel to the greatest extent possible when the supervisory signal receiver has determined that no optical signal was transmitted to the channel.

9. The optical power control apparatus claimed in claim 4, wherein each of the signal level adjusting sections includes:

a signal level adjuster capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an adjusted signal level detector for detecting the power level of the optical signal which has passed through the signal level adjuster; and

a signal level adjustment controller for controlling the adjustment of signal level performed by the signal level adjuster so that the power level of each optical signal detected by the adjusted signal level detector becomes a prescribed value.

10. The optical power control apparatus claimed in claim 6, wherein each of the signal level adjusting sections includes:

a signal level adjuster capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an adjusted signal level detector for detecting the power level of the optical signal which has passed through the signal level adjuster; and

a signal level adjustment controller for controlling the adjustment of signal level performed by the signal level adjuster so that the power level of each optical signal detected by the adjusted signal level detector becomes a prescribed value.

11. The optical power control apparatus claimed in claim 8, wherein each of the signal level adjusting sections includes:

a signal level adjuster capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an adjusted signal level detector for detecting the power level of the optical signal which has passed through the signal level adjuster; and

a signal level adjustment controller for controlling the adjustment of signal level performed by the signal level adjuster so that the power level of each optical signal detected by the adjusted signal level detector becomes a prescribed value.

12. The optical power control apparatus claimed in claim 4,

wherein each of the signal level adjusting sections includes:

an attenuator capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an attenuated signal level detector for detecting the power level of the optical signal which has passed through the attenuator; and

an insertion loss controller for controlling the amount of the insertion loss to be increased by the attenuator so that the power level of each optical signal detected by the attenuated signal level detector becomes a prescribed value.

13. The optical power control apparatus claimed in claim 6, wherein each of the signal level adjusting sections includes:

an attenuator capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an attenuated signal level detector for detecting the power level of the optical signal which has passed through the attenuator; and

an insertion loss controller for controlling the amount of the insertion loss to be increased by the attenuator so that the power level of each optical signal detected by the attenuated signal level detector becomes a prescribed value.

14. The optical power control apparatus claimed in claim 8, wherein each of the signal level adjusting sections includes:

an attenuator capable of increasing the insertion loss to such level that an input optical signal is substantially shut off;

an attenuated signal level detector for detecting the power level of the optical signal which has passed through the attenuator; and

an insertion loss controller for controlling the amount of the insertion loss to be increased by the attenuator so that the power level of each optical signal detected by the attenuated signal level detector

becomes a prescribed value.

15. The optical power control apparatus claimed in claim 3, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

16. The optical power control apparatus claimed in claim 4, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

17. The optical power control apparatus claimed in claim 5, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

18. The optical power control apparatus claimed in claim 6, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

19. The optical power control apparatus claimed in claim 7, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

20. The optical power control apparatus claimed in claim 8, wherein the demultiplexer and the multiplexer are formed of arrayed waveguide gratings, respectively.

21. The optical power control apparatus claimed in claim 7, wherein the supervisory signal receiver is an OSC (Optical Server Channel) terminator that terminates an OSC signal.

22. The optical power control apparatus claimed in claim 8, wherein the supervisory signal receiver is an OSC (Optical Server Channel) terminator that terminates an OSC signal.

23. The optical power control apparatus claimed in claim 4 further comprising:

an adjusted optical signal detector for detecting optical signals which have been adjusted by the signal level adjusting sections, respectively; and

a signal level adjusting section failure finder which determines that a failure has occurred in the signal level adjusting sections when the adjusted optical signal detector has detected no optical signal after the optical signal detector detected optical signal input.

24. An optical power control method comprising:

an optical signal transmission detecting step for detecting the presence or absence of optical signals transmitted through their respective proper channels with respect to each of a plurality of channels for transmitting optical signals each having a different wavelength, respectively, to the same multiplexer, in at least part of which at least part of each optical signal leaks into a channel allocated for an optical signal having another wavelength; and

a shutting down step for shutting down the channel where no proper optical signal transmission was detected at the optical signal transmission detecting step.

25. An optical power control method comprising:

an optical signal transmission detecting step for detecting the presence or absence of optical signals transmitted through their respective proper channels with respect to each of a plurality of channels

for transmitting optical signals each having a different wavelength, respectively, to the same multiplexer, in at least part of which at least part of each optical signal leaks into a channel allocated for an optical signal having another wavelength; and

an insertion loss increasing step for increasing the insertion loss in the channel where no proper optical signal transmission was detected at the optical signal transmission detecting step so that the insertion loss in the channel becomes greater than the insertion loss that occurs on the occasion of proper optical signal transmission.

26. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a demultiplexed signal level detecting step for detecting the power levels of the optical signals of the respective channels demultiplexed at the demultiplexing step;

an optical signal detecting step for deciding whether or not the power level of each optical signal detected at the demultiplexed signal level detecting step is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel;

a switching step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and blocking the passage of the optical signal of the channel where no optical signal input was detected at the optical signal detecting step; and

a multiplexing step for multiplexing the optical signals of the respective channels, whose passage was allowed at the switching step.

27. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a demultiplexed signal level detecting step for detecting the power levels of the optical signals of the respective channels demultiplexed at the demultiplexing step;

an optical signal detecting step for deciding whether or not the power level of each optical signal detected at the demultiplexed signal level detecting step is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel;

a signal level adjusting step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input was detected at the optical signal detecting step to the greatest extent possible; and

a multiplexing step for multiplexing the optical signals of the respective channels which have undergone the signal level adjusting step.

28. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a spectrum analyzing step for analyzing the spectrum of the multiplexed optical signal before being demultiplexed at the

demultiplexing step;

a wavelength-specific signal level detecting step for detecting the power levels of the optical signals of the respective channels based on the analysis result obtained at the spectrum analyzing step;

an optical signal detecting step for deciding whether or not the power level of the optical signal detected at the wavelength-specific signal level detecting step with respect to each wavelength is lower than the lowest level of an received optical signal to detect optical signal input in each channel;

a switching step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and blocking the passage of the optical signal of the channel where no optical signal input was detected at the optical signal detecting step; and

a multiplexing step for multiplexing the optical signals of the respective channels, whose passage was allowed at the switching step.

29. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a spectrum analyzing step for analyzing the spectrum of the multiplexed optical signal before being demultiplexed at the demultiplexing step;

a wavelength-specific signal level detecting step for detecting the power levels of the optical signals of the respective channels based on the analysis result obtained at the spectrum analyzing step;

an optical signal detecting step for deciding whether or not the power level of the optical signal detected at the wavelength-specific

signal level detecting step with respect to each wavelength is lower than the lowest level of an received optical signal to detect optical signal input in each channel;

a signal level adjusting step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input was detected at the optical signal detecting step to the greatest extent possible; and

a multiplexing step for multiplexing the optical signals of the respective channels which have undergone the signal level adjusting step.

30. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a supervisory signal receiving step for receiving a supervisory signal indicating whether there is transmission of at least part of the optical signals of the respective channels which form the multiplexed optical signal input at the demultiplexing step;

a switching step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and blocking the passage of the optical signal of the channel where no optical signal input was detected at the supervisory signal receiving step; and

a multiplexing step for multiplexing the optical signals of the respective channels, whose passage was allowed at the switching step.

31. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a supervisory signal receiving step for receiving a supervisory signal indicating whether there is transmission of at least part of the optical signals of the respective channels which form the multiplexed optical signal input at the demultiplexing step;

a signal level adjusting step for receiving the optical signals of the respective channels demultiplexed at the demultiplexing step, and adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input was detected at the supervisory signal receiving step to the greatest extent possible; and

a multiplexing step for multiplexing the optical signals of the respective channels which have undergone the signal level adjusting step.

32. An optical power control method comprising:

a demultiplexing step for receiving a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, and demultiplexing the multiplexed optical signal into the optical signals having different wavelengths corresponding to the respective channels;

a demultiplexed signal level detecting step for detecting the power levels of the optical signals of the respective channels demultiplexed at the demultiplexing step;

an optical signal detecting step for deciding whether or not the power level of each optical signal detected at the demultiplexed signal level detecting step is lower than the lowest level of an received optical

signal to detect optical signal input with respect to each channel;

a signal level adjusting step for adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input was detected at the optical signal detecting step to the greatest extent possible;

a multiplexing step for multiplexing the optical signals of the respective channels which have undergone the signal level adjusting step;

an adjusted optical signal detecting step for detecting optical signals which were adjusted at the signal level adjusting step; and

a signal level adjustment failure finding step for determining that a failure occurred in the adjustment carried out at the signal level adjusting step when no optical signal was detected at the adjusted optical signal detecting step after optical signal input had been detected at the optical signal detecting step.

33. An optical power control program for controlling a computer to perform:

an optical signal transmission detecting process for detecting the presence or absence of optical signals transmitted through their respective proper channels with respect to each of a plurality of channels for transmitting optical signals each having a different wavelength, respectively, to the same multiplexer, in at least part of which at least part of each optical signal leaks into a channel allocated for an optical signal having another wavelength; and

a shutting down process for shutting down the channel where no proper optical signal transmission has been detected by the optical signal transmission detecting process.

34. An optical power control program for controlling a

computer to perform:

an optical signal transmission detecting process for detecting the presence or absence of optical signals transmitted through their respective proper channels with respect to each of a plurality of channels for transmitting optical signals each having a different wavelength, respectively, to the same multiplexer, in at least part of which at least part of each optical signal leaks into a channel allocated for an optical signal having another wavelength; and

an insertion loss increasing process for increasing the insertion loss in the channel where no proper optical signal transmission has been detected by the optical signal transmission detecting process so that the insertion loss in the channel becomes greater than the insertion loss that occurs on the occasion of proper optical signal transmission.

35. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a demultiplexed signal level detecting process for detecting the power levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

an optical signal detecting process for deciding whether or not the power level of each optical signal detected by the demultiplexed signal level detecting process is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel; and

a switching process for receiving the optical signals of the respective channels demultiplexed by the demultiplexing process, and preventing the optical signal of the channel where no optical signal input has been detected by the optical signal detecting process from being input in the multiplexer.

36. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a demultiplexed signal level detecting process for detecting the power levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

an optical signal detecting process for deciding whether or not the power level of each optical signal detected by the demultiplexed signal level detecting process is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel; and

a signal level adjusting process for adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input has been detected by the optical signal detecting process to the greatest extent possible before inputting the optical signal in the multiplexer.

37. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which

receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a spectrum analyzing process for analyzing the spectrum of the multiplexed optical signal before being demultiplexed by the demultiplexer;

a wavelength-specific signal level detecting process for detecting the power levels of the optical signals of the respective channels based on the analysis result obtained by the spectrum analyzing process;

an optical signal detecting process for deciding whether or not the power level of the optical signal detected by the wavelength-specific signal level detecting process with respect to each wavelength is lower than the lowest level of an received optical signal to detect optical signal input in each channel; and

a switching process for receiving the optical signals of the respective channels demultiplexed by the demultiplexer, and preventing the optical signal of the channel where no optical signal input has been detected by the optical signal detecting process from being input in the multiplexer.

38. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels

demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a spectrum analyzing process for analyzing the spectrum of the multiplexed optical signal before being demultiplexed by the demultiplexer;

a wavelength-specific signal level detecting process for detecting the power levels of the optical signals of the respective channels based on the analysis result obtained by the spectrum analyzing process;

an optical signal detecting process for deciding whether or not the power level of the optical signal detected by the wavelength-specific signal level detecting process with respect to each wavelength is lower than the lowest level of an received optical signal to detect optical signal input in each channel; and

a signal level adjusting process for adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input has been detected by the optical signal detecting process to the greatest extent possible before inputting the optical signal in the multiplexer.

39. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a supervisory signal receiving process for receiving a supervisory signal indicating whether there is transmission of at least

part of the optical signals of the respective channels which form the multiplexed optical signal input to the demultiplexer; and

a switching process for preventing the optical signal of each channel from being input in the multiplexer when it has been determined that no optical signal was transmitted to the channel by the supervisory signal receiving process.

40. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a supervisory signal receiving process for receiving a supervisory signal indicating whether there is transmission of at least part of the optical signals of the respective channels which form the multiplexed optical signal input to the demultiplexer; and

a signal level adjusting process for adjusting the signal level so as to attenuate the level of the optical signal of each channel to the greatest extent possible when it has been determined that no optical signal was transmitted to the channel by the supervisory signal receiving process.

41. An optical power control program for controlling a computer of an intermediary device comprising a demultiplexer which receives a multiplexed optical signal obtained by multiplexing optical signals having different wavelengths, one channel being allocated for each, to demultiplex the multiplexed optical signal, and a multiplexer

which receives the optical signals of the respective channels demultiplexed by the demultiplexer to multiplex the optical signals after their power levels have been adjusted, respectively, to perform:

a demultiplexed signal level detecting process for detecting the power levels of the optical signals of the respective channels demultiplexed by the demultiplexer;

an optical signal detecting process for deciding whether or not the power level of each optical signal detected by the demultiplexed signal level detecting process is lower than the lowest level of an received optical signal to detect optical signal input with respect to each channel;

a signal level adjusting process for adjusting the signal level so as to attenuate the level of the optical signal of the channel where no optical signal input has been detected by the optical signal detecting process to the greatest extent possible;

an adjusted optical signal detecting process for detecting optical signals which were adjusted by the signal level adjusting process; and

a signal level adjustment failure finding process for determining that a failure has occurred in the adjustment by the signal level adjusting process when no optical signal has been detected by the adjusted optical signal detecting process after optical signal input was detected by the optical signal detecting process.